

The Benefits of Modern Goggle Technology

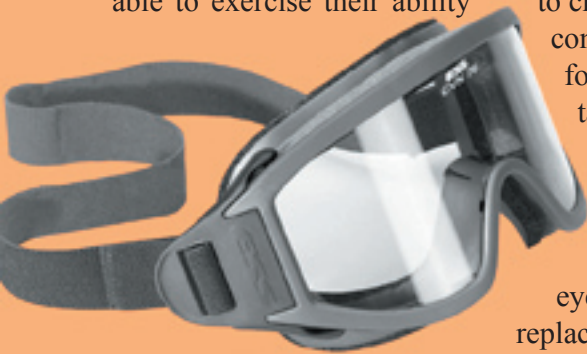


By Peter French

Sailors and Marines are outfitted with some of the most advanced personal protective equipment in the world. But standard PPE ensembles still include some items that are obsolete by commercial-market standards.

One such item is the sun, wind and dust (SWD) goggle, which was designed in the 1940s. Eye-protection designs and technologies have made significant steps forward in the last few decades, but the SWD goggle has seen little refinement in the past half century. Now that some new goggles and more flexible procurement systems are available, units are able to exercise their ability

to choose the safety, comfort and performance advantages of contemporary eye-protection systems. This new up-to-date eyewear should replace goggles created in the 1940s.



An example of a more liberal procurement system is found in technologically advanced, non-developmental items (NDIs) being approved for shipboard use faster than traditional product-development cycles would allow. A good example of an NDI success story is the recent approval of the Eye Safety System (ESS) flight-deck goggle (NSN 4210-01-492-5720, Model No. ESS01CB-NV) as an upgrade from the SWD

goggle.

New designs and technologies often are found in the commercial sector. This broad marketplace traditionally has been a fertile source of new products that benefit the military, but advancements in goggle technologies developed slowly. When designed in WWII, the SWD goggle was better than many of the eye-protection systems of the day. It now stands out as a technological relic. Profound changes have taken place in eye protection, particularly in the high-adrenaline arena of the sports-goggle market. Here are five meaningful advancements:

- **Anti-fog lens coatings:** Anyone who has worn a goggle during strenuous activity will testify that fog resistance is one of the most important qualities in this product category. Minimizing condensation requires the goggle lens to have an effective chemical anti-fog coating. Several types of coatings are available in the commercial market—some more effective than others. An uncoated lens is far more susceptible to fogging, which seriously can impair the wearer's vision. A simple test can tell you if a lens is anti-fog treated: Just exhale on the lens—if it fogs up, the lens probably does not have an anti-fog coating.

- **Large, filtered ventilation frames:** Sports-goggle experts long have recognized that another key design element in the battle against fog is adequate ventilation. High airflow can dissipate humidity that otherwise would condense as fog on the lens. The most fog-resistant modern goggles have large ventilation zones, and larger air volumes inside the frames maximize airflow and minimize condensation. It is important that vents are filtered fully to keep eye-irritating particles outside the frame and away from the eyes.



President George Bush sported the new and advanced goggles on board USS *Abraham Lincoln*.

● Comfortable anatomical fit and rapid strap-adjustment systems: A key feature in goggle performance is a sealed, comfortable fit. Goggles that are uncomfortable due to gaps, pressure points, or improperly adjusted straps will not protect the eyes against blowing dust and smoke. In this case, Sailors or Marines may not use the goggles—even in hazardous places. High-quality goggles use a combination of anatomical modeling and malleable face padding to provide a sealed fit that is comfortable to wear for long periods. High-memory elastic straps with convenient length adjusters ensure a proper fit.

● Wide field of view with ample fit over eyeglasses: Modern goggles provide unobstructed peripheral vision and a wider field of view. The SWD goggle has a relatively narrow field of view and a small interior volume that affords minimal room for eyeglass frames. Goggle frames now are available that fit over eyeglasses comfortably or accommodate the use of a prescription-lens insert.

● ANSI Z87.1 certification & OSHA compliant materials: The ANSI standard sets the requirements to design, construct, test, and use eye-protection devices, including standards to prevent injuries from items that might hit or penetrate the lens. The ANSI Z87.1

Eye protection is critical to all Sailors on the flight deck.



The Naval Safety Center is dedicated to reducing mishaps by 50 percent in two years.

Flight, Flight-Related, and Ground Class A Mishaps 05/19/2003 to 08/21/2003

Aircraft	Command	Date	Fatalities
CH-46E	HMM-364	05/19/2003	4
Helo crashed into a canal after striking a wire.			
EA-6B	VAQ-137	05/21/2003	0
ALQ-99 pod departed aircraft, damaging multiple aircraft systems.			
F-14B	VF-103	06/20/2003	0
Tomcat departed end of runway during landing rollout.			
P-3C	VP-62	07/10/2003	0
Aircraft ground fire erupted after oxygen servicing.			
MH-53E	HC-4	07/16/2003	4
Helo crashed into terrain.			
AV-8B	VMAT-203	07/16/2003	0
Harrier crashed during local ACM sortie.			
F-18C	VMFA-232	07/22/2003	0
Hornet crashed during night close-air-support mission.			
AV-8B	VMA-513	07/23/2003	0
During landing rollout, pilot lost control of aircraft and departed runway.			
EA-6B	VAQ-135	07/27/2003	0
Aircraft crashed after carrier takeoff. Minor injuries.			
S-3B	VS-24	07/31/2003	0
Viking crashed during routine air-nav flight. Two first-aid injuries.			
E-2C	DPRO GRU ST AUG	08/14/2003	0
Hawkeye departed runway on landing rollout.			

Class B Mishaps 05/19/2003 to 08/21/2003

Aircraft	Command	Date
SH-60F	HS-8	06/07/2003
During night hover in starboard delta, sonar transducer lost while being raised.		
F-14B	VF-101	06/12/2003
Outboard engine access doors departed aircraft during flight.		
AV-8B	VMA-214	06/16/2003
Brake fire after an aborted takeoff.		
SH-60F	HS-4	07/21/2003
Mk-50 REXTORP struck sonar transducer, causing the transducer to depart aircraft.		
TAV-8B	VMAT-203	08/05/2003
Front canopy shattered during an air-to ground sortie.		
CH-53E	HMM-163	08/06/2003
While in the starboard delta, helo had a No. 2 engine fire and made emergency landing on ship.		
TAV-8B	VMAT-203	08/09/2003
Front cockpit canopy departed the aircraft during takeoff. Harrier safely aborted takeoff.		